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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/720,376

11/25/2003

William E. Robbins

117798

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02/23/2005

OLIFF & BERRIDGE, PLC  
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EXAMINER

HANLEY, JOHN C

ART UNIT

PAPER NUMBER

2856

DATE MAILED: 02/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/720,376

Applicant(s)

ROBBINS, WILLIAM E.

Examiner

John C. Hanley

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2856

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 9 and 11 is/are allowed.
- 6) ☒ Claim(s) 1-3 and 5-8 and 10 is/are rejected.
- 7) ☒ Claim(s) 4 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 11/25/03.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

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**DETAILED ACTION**

***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-3 and 5-7 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are: The requirement of connecting a simulator having the required characteristics stated on page 11, next to last paragraph. Applicant states that the simulator MUST have the requirements listed in that paragraph to perform the intended balancing operation.

3. Claim 8 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted elements are: The requirement that a simulator for the intended use having the required characteristics stated on page 11, next to last paragraph. Applicant states that the simulator MUST have the requirements listed in that paragraph to perform the intended balancing operation.

4. Claims 8 and 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The mass in claims 8 and 10 is vague and indefinite, since it can be any mass, as it depends upon the intended drive shaft to be simulated, which can be any mass, and is not an element of the simulator device to be compared as a relative mass. In other words, the mass in these claims has no definite bounds.

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***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-3 and 5-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicant's admissions in view of Heilman et al (US-5367909).

7. Applicant admits the following:

8. "Rotary devices such as engines and the auxiliary units that are connected to engines by drive shafts are usually balanced individually with drive shaft simulators to compensate for geometric errors, for example swash and eccentricity, due to misalignment of the rotational axes of the respective rotary devices when connected together by a drive shaft."

9. "In one method currently employed, drive shaft simulators are rigidly attached to the rotary device to be balanced."

10. "In known methods the drive shaft simulators are designed so that the mass, centre of gravity and inertia of the drive shaft simulator is the same as the drive shaft being simulated."

11. Heilman et al shows a test weight and method for balancing where the test weight duplicates the inertial load of the application component and gives a simple, lost method of determining whether or not the counterbalanced motor is properly balanced for subsequent attachment with the application component.... By duplicating the inertial load of the customer application, the

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test weight permits gauging the balance without actually joining the motor to the component.

12. It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to balance a rotary device connected to a drive shaft by a flexible coupling, as admitted by applicant, by use of a simulator having a test weight that duplicates the inertial load of the application component, as taught by Heilman et al, to allow balancing of the rotary device without the application component being attached. Regarding the requirement that the simulator have half the mass of the shaft, one having elementary knowledge of statics would readily realize that the mass of the drive shaft at its point of influence would be half the mass of the shaft where the other end of the shaft is supported by another element. Claim 5 is further obvious as the intended end use of the measuring process. Claims 6 and 7 are applications of engine/drive shaft combination(s) that obviously fall within the application of the method in applicant's statement in paragraph 6, above.

***Allowable Subject Matter***

13. Claims 9 and 11 are allowed.

14. Claim 4 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

15. The following is a statement of reasons for the indication of allowable subject matter: A simulator to simulate drive shaft unbalance due to swash of engine having a polar moment of inertia substantially equal to its diametral moment of inertia was not found in the prior art located. Similarly, a method of placing such a simulator on a device to be balanced

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where the COG of the simulator coincides with the plane of flexibility of the flexible coupling was not found in the prior art located.

**Conclusion**


16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The remaining are is cited to show general background shaft balancing art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John C. Hanley whose telephone number is 571-272-2195. The examiner can normally be reached on M-F 9AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on 571-272-2208. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JCH



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